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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,363	07/29/2003	Nobuyuki Irie	109395.01	4481

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EXAMINER

KIM, PETER B

ART UNIT PAPER NUMBER

2851

DATE MAILED: 09/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/628,363

Applicant(s)

IRIE, NOBUYUKI

Examiner

Peter B. Kim

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/830,501.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's arguments filed on July 18, 2005 have been fully considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 6-8, and 12-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jain et al. (Jain) (6,304,316) in view of Nakashima (5,976,738).

Jain discloses a method of exposure, a method of transfer of a pattern onto a substrate, and an exposure apparatus comprising a stage (3), a substrate (1), method of detecting deformation information of the mask substrate (15, col. 8, lines 4-22, col. 9 line 65 – col. 10, line 31) and adjusting at least one of (i) a relative positional relationship between the pattern image and the mask substrate at the time of transfer of the pattern image (Fig. 1, col. 6, lines 43-60) and (ii) a projection characteristic of the pattern image based on the deformation information (Fig. 7, col. 10, lines 47-65) where the deformation occurs due to the substrate's own weight (col. 1, lines 26-31). Jain also discloses the mask substrate supported on a surface that is substantially perpendicular to a predetermined direction, the supported mask substrate being deformed with respect to at least the predetermined direction (Fig. 1, 7). Jain also discloses the substrate placed on the moving unit having three support portions (11-13, col. 6, lines 43-60). However, Jain does not disclose a method of exposure, a method of transfer where a plurality of master masks are transferred and reduced onto a mask substrate. Nakashima discloses in Fig. 1, a plurality of

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master masks (RA and RB) and transferring the reduced images onto a mask substrate (W).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of Jain to the method of Nakashima in order to provide a method of correctly aligning the wafer or mask substrate as taught by Jain in col. 5, lines 6-55.

Claims 5, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jain et al. (Jain) in view of Nakashima as applied to claims 1, and 8 above, and further in view of Taniguchi et al. (Taniguchi) (6,078,380).

The further difference between the modified Jain and the claimed invention is changing the exposure amount accordance with the change of a line width and the pattern which is divided into more than one part to be formed as a different mask. Taniguchi discloses patterns divided into more than one part to be formed as a different mask (col. 58, lines 8-27) and changing exposure amount (col. 48, lines 7-20 and col. 58, lines 24-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide the patterns divided into more than one part and the changing of the exposure amount to the invention of Jain in order to compensate for the amount of change in exposure condition for each mask pattern as taught by Taniguchi in col. 58, lines 15-27.

Claims 1, 3, 6, 8, 9, 12-14, and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakashima (5,976,738) in view of Higashiki (6,262,792).

Nakashima discloses in Fig. 1, a plurality of master masks (RA and RB) and transferring the reduced images onto a mask substrate (W). However, Nakashima does not disclose detecting

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deformation information of the mask substrate and adjusting the projection characteristics of the pattern image based on the deformation information. Higashiki discloses in Fig. 2, detecting deformation information (61a, 61b) and adjusting the optical characteristics of a projection optical system for projection the pattern image (ref. 42, col. 8, lines 24-43). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of Higashiki to the invention of Nakashima in order to provide a method of correctly aligning the wafer or mask substrate as taught by Higashiki in col. 2, lines 38-43.

Response to Arguments

In response to the amendment and arguments, Ootake reference is withdrawn and Jain reference used in the rejections.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter B. Kim whose telephone number is (571) 272-2120. The examiner can normally be reached on 8:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Peter B. Kim
Primary Examiner
Art Unit 2851

August 29, 2005